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ABSTRACT

This article argues for a set of ordered rules for morphophonemic alternations in the N-class in Swahili, positing /n/ as the class prefix and an abstract segment as stem initial in certain words. The rules are: (1) liquids and the labial glide become corresponding voiced stops; (2) the nasal prefix assimilates in coronality and backness, and becomes syllabic in monosyllables; (3) nonsyllabic nasals are deleted before nasals and voiceless consonants; and (4) a glide (/y/) is inserted before the nasal prefix and a vowel. Arguments are presented bearing on the appropriate use of historical evidence for synchronic analyses and on the constraints on abstraction in the grammar. (AM)

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ORDERED RULES AND THE MORPHOPHONEMICS OF THE N-CLASS IN SWAHILI*

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In this short note I intend to present a small set of ordered rules which capture the morphophonemic alternations that exist in Swahili in connection with the N-class (class 9/10) and which concerns the class prefix and the stem initial vowel or consonant. I shall also draw some conclusions which might help put in a much clearer perspective some recent claims made by transformational-generative grammarians in connection with the methodology of diachronic linguistics.

For a specification of the problems related to the N-class in Swahili the reader is referred to textbooks such as Ashton (1968), Loogman (1965) and Polomé (1967). For the purpose of the present note I shall assume that lexical entries in a grammar of Swahili are not only marked for major categories but also for the particular class to which they belong. This 'bundle of features' is then subject to a first morphophonemic rule the effect of which is that the class-feature is realised in the relevant prefix. In the case of adjectives etc., a copying rule (Prefix Attachment) will have applied previously.

With respect to the N-class[1], I suggest the prefix be realised as /n/ and not as /ni/. The latter could be argued for on historical grounds, but the reason why I have chosen to ignore this position will become clear below.

Consider the following rules:

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1. Liquids and the labial glide become corresponding voiced stops:

$$\begin{bmatrix} \alpha\text{cons} \\ \alpha\text{voc} \\ -\alpha\text{hi} \\ \alpha\text{ba} \end{bmatrix} \longrightarrow \begin{bmatrix} -\text{cnt} \\ +\text{voi} \\ -\text{nas} \\ -\text{hi} \\ \alpha\text{cor} \end{bmatrix} \Big/ \quad \# \begin{bmatrix} +\text{nas} \\ +\text{cor} \end{bmatrix} \text{——}$$

2. The nasal prefix assimilates in coronality and backness, and becomes syllabic in monosyllables:

$$\begin{bmatrix} +\text{nas} \\ +\text{cor} \end{bmatrix} \longrightarrow \begin{bmatrix} \alpha\text{cor} \\ \beta\text{ba} \\ \gamma\text{syl} \end{bmatrix} \Big/ \#\text{——} \left\{ \begin{array}{ll} \begin{bmatrix} +\text{cns} \\ +\text{voi} \\ \alpha\text{cor} \\ \beta\text{ba} \\ -\text{nas} \end{bmatrix} & ((\text{C})\ \text{V}\ (\text{C}))_2 \\ \gamma\left\langle \begin{bmatrix} +\text{cns} \\ \alpha\text{cor} \\ \beta\text{ba} \end{bmatrix} \right. & \left. (\text{C})\ \text{V}\ (\text{C}) \right\rangle \end{array} \right\} \#$$

3. Non-syllabic nasals are deleted before nasals and voiceless consonants:

$$\begin{bmatrix} +\text{nas} \\ -\text{syl} \end{bmatrix} \longrightarrow \quad \emptyset \Big/ \#\text{——} \left\{ \begin{bmatrix} +\text{nas} \end{bmatrix} \atop \begin{bmatrix} -\text{voi} \end{bmatrix} \right\}$$

4. A glide (/y/) is inserted between the nasal prefix and a vowel:

$$\emptyset \longrightarrow [\text{y}] \Big/ \# \begin{bmatrix} +\text{nas} \\ +\text{cor} \end{bmatrix} \text{——} \text{V}$$

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The effect of rule 1 can be seen in such items as ndefu (<-refu, 'long'), mbili (<-wili, 'two'), and ndimi (<u-limi, 'tongue')[2]. As examples to rule 2 (nasal assimilation) consider the following: mbovu (<-bovu, 'rotten'), ndizi 'banana', ngoma 'drum' ([ŋgóma]), mvua 'rain'. The γ and the angled parentheses imply that if a segment to the left of the arrow fits into the environment given to the right of the arrow the value of γ is +, otherwise γ is - ; (e.g. mbu 'mosquito', nge 'scorpion', nchi 'country). Rule 3 indicates that the prefix is realized as zero before stems with initial nasal, voiceless consonant or h (e.g. mio 'throats', pepo 'wind', simba 'lion', hongo 'tribute'). Rule 4 may be illustrated by the following examples: nyeupe (<-eupe, 'white'), nyingi (<-ingi, 'many'), nyama 'meat', nyuki 'bee'.

It seems to me that Rules 1-4 capture with the greatest generality and economy the observable facts about the phonology of the N-class in Swahili. There are various reasons why I would reject /ni/ as a possible base form candidate. Although /ni/ may be preferred on historical grounds (cf. Class 9/10; Proto Bantu ni-/lî-, ni-) it must be emphasized that the ultimate justification for adopting such a base form should depend on simplicity, descriptive adequacy and the nature of the synchronic data itself. Notice that it would not take genius to adopt /ni/ as underlying form and still end up with a relatively simple grammar consisting equally of four rules the first of which would take on the form of an 'elsewhere' rule[3] (where /i/ becomes (i) j in the context nasal___vowel and (ii) Ø elsewhere). The point, however, is that as far as I can see the synchronic data of Swahili does not justify any such deletion rule (as a natural rule) unless of course we intend to write a grammar that does not account for the Swahili native speaker's intrinsic knowledge of his language, but rather one that accounts for that of his ancestors.

At the same time notice that the ordering of Rules 1-4 can be justified on both synchronic and historical grounds (historical knowledge may suggest what kind of phonological processes might be expected). For one thing, we reach a high degree of simplicity (generality) by assuming that in Bantu rule 1 is very important and reflects a general phonological process. Most textbooks, however, look upon the phenomena captured by this rule as being extremely exceptional. A few lines at the very end of a discussion on the N-class are usually considered sufficient. In point of fact, the phonological process reflected by rule 1 apart from having been very common in Ur-Bantu[4] still applies over most of the Bantu area. Failure by textbook writers to draw relevant conclusions from such observation was probably due to the nature of their primary aim which was to provide us with a systematic basis for learning the language rather than studying it. It may be of interest to note that l having become plosive after n sometimes remains plosive when the nasal has dropped off. For example in the case of ndevu 'beard' (<*-lelû) we have derivations such as kidevu 'chin' udevu 'hair of beard'. That is, n+l becomes nd but nd-n becomes d and not l. Meinhof (1932) holds that such (comparatively recent) derivations can only be formed if

the older law does not apply any longer. He writes (p. 35): "As long as the speaker is aware that the first law exists (n+l nd) and applies it in his speech, such derivations will not be formed. But when the law ceases to apply and is forgotten, deviations from the rule naturally are more apt to occur. This is a process of analogy." I am inclined to question this claim because synchronic data of Bantu languages presents us with empirical evidence against the view that the law "has ceased to apply and is forgotten" (i.e. it would be illogical to postulate an underlying systematic phonemic /l/ for such lexical items). Consider the following counter-examples (the derivational source is written between brackets): (i) from Chibemba: ndamu 'clever person' (-lamuka, 'be clever'), ndase 'wounded person' (-lasa, 'wound'), ndawi 'prophet' (-lawisha, 'predict'), ndela 'ruler' (-lela, 'govern') ndubulwila 'advocate' (-lubulula, 'plead'); (ii) from Luganda: ndagu 'sorcerer' (-lagula, 'practice devination'); (iii) from Siluyana: ndumbana 'boy' (-lume 'male' + -ana 'child'), nduyi 'fisherman' (-luya, 'fish'). These are just a few examples and many more are available. They indicate that the d/l alternation still exists in present-day Bantu languages. We are therefore justified in postulating underlying l in the above mentioned forms without violating the substantive constraint (cf. Kiparsky 1968, 1971). This constraint (also referred to under the term 'psychological simplicity') in dealing with the relation between underlying and surface representations, holds that underlying representations which do not correspond directly to anything in the surface are rejected because it would be impossible for the child to learn them (see also Skousen (1972), for examples relating to syntax). Notice that the constraint would certainly be violated in the case of underlying /ni/ as has been discussed above.

Having established the integrity of Rules 1-4 we may proceed one step further and see whether the synchronic rules can be used as a basis for internal reconstruction (cf. Sigurd 1966). That is, it would seem reasonable to presume that in items such as ndoto 'dream' (-ota, 'to dream'), nduli 'killer' (-ua, 'to kill'), mboni 'pupil of eye' (-ona, 'to see'), mbovu 'rotten' the stem used to have an initial l, r or w. There is evidence that this was the case.[5] What is more, evidence from present-day Bantu languages seems to add further support to this hypothesis (consider for example Chibemba -lola 'to see' and -loota 'to dream').

There are two exceptions to the above mentioned rules viz. (i) njema 'good' [ndjé·ma] (that is: nyema → njema) and (ii) dume (not ndume) 'male' (i.e. this item is marked for -R2). In the light of what we have discussed in the previous paragraph we could argue that dume reflects an underlying form /lume/. There is evidence that (i) the proto-Bantu form for 'male' was indeed *-lume and (ii) that a process as captured by R.1 has taken place for example in Siluyana ndumbana 'boy', the derivational source of which was -lume (male) + -ana (child). Furthermore, if one really wants to account for the loss of the initial nasal in ndume one could always refer to avoidance of homonymy as a possible candidate (e.g. Chibemba ndume 'brother' which is also derived from -lume).

To summarize: Rules 1-4 capture in the most economic way the facts relating to the morphophonemics of the N-class in Swahili. Evidence has been presented which seems to justify the postulation of an underlying /l/ for those lexical items that belong to the N-class and which show initial nd in the surface forms. No such evidence exists which might justify an underlying /ni/ for the class prefix. With respect to the latter case it seems reasonable to assume that restructuring of the lexicon has taken place.

NOTES

*I am grateful to G. Pullum and J. Russell for having commented on a previous draft of this note.

1 Lexical items marked for [+Foreign] do not take a prefix and have been left out of the discussion here (cf. items such as: akili 'common sense', baridi 'cold', chai 'tea', kazi 'work' etc.).

2 Ndimi being the plural N-class ('tongues').

3 On problems relating to 'elsewhere' rules in phonology see Kiparsky (1972), Brame (1968), Crothers (1971).

4 Cf. Meinhof (1932: 34) "The reason for this is that the oral closure of the nasal is extended to the following sound, which becomes plosive accordingly. The change in this direction may have been facilitated by the slightly plosive tendency already inherent in the primary fricatives".

5 Notice that Meinhof (1932: 33) does not consider d and b to be part of the sound-system of Ur-Bantu.

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